

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

BRIDGESTONE SPORTS CO., LTD.,)	
and BRIDGESTONE GOLF, INC.,)	
)	
Plaintiffs,)	C. A. No. 05-132 (JJF)
)	
v.)	
)	PUBLIC VERSION
ACUSHNET COMPANY,)	
)	
Defendant.)	

**ACUSHNET'S MEMORANDUM OF LAW IN SUPPORT OF
ITS MOTION FOR SUMMARY JUDGMENT OF INVALIDITY
OF U.S. PATENT NO. 6,634,961**

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I. INTRODUCTION

Defendant Acushnet Company ("Acushnet") files this Memorandum in Support of Its Motion for Summary Judgment of Invalidity of U.S. Patent No. 6,634,961 ("the '961 patent") (Ex 1). Acushnet will show that the asserted claim of the '961 patent is anticipated or made obvious by a single prior art patent, U.S. Patent No. 6,612,940 ("the Nesbitt '940 patent") (Ex. 2), and therefore invalid under 35 U.S.C. § 102(e) and/or § 103. Acushnet will establish that each and every limitation of the asserted claim of the '961 patent is disclosed in the prior art Nesbitt '940 patent.

II. NATURE AND STAGE OF PROCEEDINGS

This is a patent infringement suit involving eleven patents and scheduled for trial, starting June 18, 2007. Bridgestone alleges that Acushnet infringes seven patents-in-suit. Acushnet alleges that Bridgestone infringes four patents-in-suit. Fact and expert discovery is finished and a pre-trial conference will be held on May 25, 2007.

This Court has not yet issued a *Markman* decision as a step in construing the asserted claims. However, the present motion is timely because the Court has required the parties to file summary judgment motions by this date, and under any construction of the patent, including that offered by Bridgestone, these claims are invalid.

III. SUMMARY OF ARGUMENT

Summary judgment of invalidity as a matter of law should be granted on the '961 patent because each and every limitation of the asserted claims were disclosed in the prior art Nesbitt '940 patent. Because the asserted claim of the '961 patent is not novel, it is invalid under 35 U.S.C § 102. Furthermore, to the extent any limitation of the '961 patent is not found in the disclosure of the Nesbitt '940 patent, such limitation would have been obvious to any one of ordinary skill in the art. Therefore, to the extent the Nesbitt '940 patent does not anticipate the '961 patent, it makes the patent obvious and therefore invalid under 35 U.S.C. § 103.

IV. APPLICABLE LEGAL STANDARDS

1. Summary Judgment Of Invalidity Is Appropriate.

Summary judgment should be granted when no “reasonable jury could return a verdict for the nonmoving party.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986); Fed. R. Civ. P. 56(c). The use of summary judgment is particularly appropriate in complex patent infringement actions because it is a useful tool to secure a just and speedy determination of the action and to simplify and pare down the issues in such complex cases. See *Celotex Corp. v. Catrett*, 477 U.S. 317, 327 (1986); *Nike Inc. v. Wolverine World Wide, Inc.*, 43 F.3d 644, 646 (Fed. Cir. 1994) (“Summary judgment is appropriate in a patent case, as in other cases, when there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law.”)

2. Invalidity Standards.

a. Anticipation.

A patent claim is invalid if “a patent granted on an application for patent by another” discloses “the invention by the applicant for patent.” 35 U.S.C. § 102(e). Anticipation requires that a single prior art reference discloses each and every limitation of the claimed invention. *Schering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1379-80 (Fed. Cir. 2003). Anticipation is a question of fact, but “without genuine factual disputes underlying the anticipation inquiry, the issue is ripe for judgment as a matter of law.” *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1343 (Fed. Cir. 2005).

“[A] prior art reference may anticipate without disclosing a feature of the claimed invention if that missing characteristic is necessarily present, or inherent, in the single anticipating reference.” *SmithKline*, 403 F.3d at 1343; *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991). As such, “anticipation does not require actual performance of suggestions in a disclosure. Rather, [it] only requires that those

suggestions be enabling to one of skill in the art.” *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1378 -1381 (Fed. Cir. 2001). “Where... the result is a necessary consequence of what was deliberately intended, it is of no import that the article’s authors did not appreciate the results.” *MEHL/Biophile Int’l Corp. v. Milgraum, M.D.*, 192 F.3d 1362, 1366 (Fed. Cir. 1999); *Atlas Powder Co. v. Ireco, Inc.*, 190 F.3d 1342, 1348-49 (Fed. Cir. 1999) (“Because ‘sufficient aeration’ was inherent in the prior art, it is irrelevant that the prior art did not recognize the key aspect of [the] invention.... An inherent structure, composition, or function is not necessarily known.”).

In some cases, the inherent property corresponds to a claimed new benefit or characteristic of an invention otherwise in the prior art. In those cases, the new realization alone does not render the old invention patentable. *See Atlas Powder*, 190 F.3d at 1347 (“[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s function, does not render the old composition patentably new to the discoverer.”)

A patent is presumed valid, and Acushnet has the burden of proving invalidity by clear and convincing evidence. *See* 35 U.S.C. § 282; *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1320 (Fed. Cir. 2004). The presumption of section 282, however, is only “‘a procedural device which places on [Acushnet] the initial burden of going forward to establish a prima facie case on that issue.’” *Cable Elec. Prods., Inc. v. Genmark*, 770 F.2d 1015, 1022 (Fed. Cir. 1985). When a party presents evidence establishing a prima facie invalidity case, the patentee must come forward with evidence to counter the challenge to the presumption of section 282. *Id.* (citation omitted). In that instance, the patentee’s evidence must create a genuine issue of material fact underlying the invalidity inquiry in order to preclude summary judgment. *See SmithKline*, 403 F.3d at 1343 (affirming summary judgment of invalidity for anticipation); *Iron Grip*, 392 F.3d at 1320 (affirming summary judgment of invalidity for obviousness).

b. Obviousness

Even if the claimed invention of a patent is not disclosed in a single prior art reference, a patent may still be invalid if the difference between the subject matter sought to be patented and the prior art is such that the subject matter as a whole would have been obvious to a person having ordinary skill in the art in the relevant subject matter at the time the invention was made. *See* 35 U.S.C. § 103.

The determination of whether an invention would have been obvious is a legal conclusion based on the totality of the evidence, including underlying factual inquiries such as: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *See Brown & Williamson Tobacco Corp. v. Philip Morris, Inc.*, 229 F.3d 1120, 1124 (Fed. Cir. 2000).

V. NESBITT '940 IS PRIOR ART TO THE '961 PATENT

Nesbitt '940 was filed in the U.S. Patent Office on November 9, 2000, which is prior to the '961 patent's Japanese foreign filing date of May 30, 2001. (*See* Ex. 1 & 2). Nesbitt '940 patent is thus prior art to the '961 patent under 35 U.S.C § 102(e). Bridgestone does not dispute that the Nesbitt '940 is prior art.

VI. SUMMARY JUDGMENT IS PROPER BECAUSE NESBITT '940 TEACHES EVERY LIMITATION OF BRIDGESTONE'S ASSERTED PATENT CLAIMS

A. Claim 1 of the '961 Patent is Anticipated by Nesbitt '940

Bridgestone is asserting only claim 2 of the '961 patent in this litigation. Claim 2 is dependent on claim 1. As summarized in the attached Invalidity Chart, every limitation of claim 1 and claim 2 are taught by the embodiment disclosed in Tables 30, 34 and 37 of the Nesbitt '940 prior art patent. (Ex. 3).¹

¹ Tables 30, 34 and 37 represent one embodiment of the Nesbitt '940 patent, in which Table 30 discloses the core formulation; Table 34 discloses the properties of the inner

Claim 1 of the '961 patent reads:

A multi-piece solid golf ball comprising a solid core, an inner cover layer and an outer cover layer, wherein the solid core is molded from a rubber composition comprising 100 parts by weight of a base rubber composed of (a) 20 to 100 wt % of a polybutadiene having a cis-1, 4 content of at least 60% and 1,2 vinyl content of at most 2%, having a viscosity η at 25° C. as a 5 wt % solution in toluene of up to 600 mPa.s, being synthesized using a rare-earth catalyst and satisfying the relationship: $10B + 5 \leq A \leq 10B + 60$, wherein A is the Mooney viscosity (ML1+4(100° C.)) of the polybutadiene and B is the ratio Mw/Mn between the weight-average molecular weight Mw and the number-average molecular weight Mn of the polybutadiene, in combination with (b) 0 to 80 wt % of a diene rubber other than component (a), (c) 10 to 60 parts by weight of an unsaturated carboxylic acid or a metal salt thereof or both, (d) 0.1 to 5 parts by weight of an organosulfur compound, (e) 5 to 80 parts by weight of an inorganic filler, (f) 0.1 to 5 parts by weight of an organic peroxide; the inner cover layer has a Shore D hardness of 50 to 80; the outer cover layer has a Shore D hardness of 35 to 60; and the outer cover layer has a lower Shore D hardness than the inner cover layer.

Claim 2 of the '961 patent reads:

The golf ball of claim 1, wherein the diene rubber (b) includes 30 to 100 wt % of a second polybutadiene which has a cis-1, 4 content of at least 60% and a 1,2 vinyl content of at most 5%, has a Mooney viscosity (ML1+4(100°C.)) of not more than 55, and satisfies the relationship:

$\eta \leq 20A - 550$, wherein A is the Mooney viscosity (ML1+4(100°C.)) of the second polybutadiene and η is the viscosity of the second polybutadiene, in mPa.s, at 25° C. as a 5 wt % solution in toluene.

1. Nesbitt '940 Teaches the "Preamble"

The preamble to claim 1 of the '961 patent states that it relates to "a multi-piece solid golf ball comprising a solid core, an inner cover layer and an outer cover layer, wherein the solid core is molded from a rubber composition" (Ex. 1 – '961 Patent, at Claim 1). Nesbitt '940 also relates to a multi-piece solid golf ball, with a solid rubber core, an inner cover layer and an outer cover layer. (Ex. 2 – Nesbitt '940, at Abstract; cover layer; and Table 37 discloses the properties of the outer cover layer. (Ex. 2 – Nesbitt '940 at col. 43-47).

col. 16, lines 49-57; col. 44, lines 60-65; Tables 30-37). Bridgestone's validity expert, Dr. E. Bryan Coughlin ("Coughlin"), did not dispute that this preamble limitation is disclosed in the Nesbitt '940 patent. (*See* Ex. 4 – Coughlin 2/20/07 Report).

2. Nesbitt '940 Teaches the "Base Rubber Composition"

a. Claim 2 of the '961 Patent Covers Base Rubber Compositions Composed of More Than Two Rubbers

Claim 1 of the '961 patent requires 100 parts by weight of a base rubber composed of (a) 20 to 100 wt % of a polybutadiene having certain material properties, in combination with (b) 0 to 80 wt % of a diene rubber other than component (a).

Claim 2 depends from claim 1, and further requires that the diene rubber (b), described in claim 1, include 30 to 100 wt % of a second polybutadiene rubber with certain additional material properties. Therefore, in any instance in which Claim 2's second polybutadiene does not account for 100 wt % of the total diene rubber (b) (*note: claim 2 only requires it account for at least 30 wt %*), there would necessarily have to be another rubber present in the diene rubber (b).

In other words, because claim 2 only requires 30% of the diene rubber (b) to be the "second polybutadiene," the only reasonable construction is that diene rubber (b) can include more than one rubber. In his deposition, Dr. Coughlin agreed with this interpretation of the claim:

Q: Okay. ... so, that diene rubber b, in claim two, is composed of two different rubbers; correct?

A: It would be, if ... it could, yes.

(Ex. 5 – Coughlin 3/6/07 Tr. 198:3-8).

Consequently, in instances in which the diene rubber (b) is composed of more than one rubber, claim 2 of the '961 patent would cover base rubbers compositions

composed of three different types of rubber. Again, Bridgestone's expert agreed with this construction:

Q: Now, you discussed earlier that the '961 patent actually can include more than two rubbers; is that correct?

A: Yes.

(Ex. 5 – Coughlin 3/6/07 Tr. 194:3-6).

A: So, in my opinion, that you could have a combination of three base rubbers in the core composition, as taught by the '961 patent, you have to combine those two claims.

(Ex. 5 – Coughlin 3/6/07 Tr. 197:5-8).

Q: Then, when you read claim two, your opinion is that a third rubber can be introduced to the core composition?

A: That citation that you just read, wherein the diene rubber (b) includes 30 to 100 weight percent of a second polybutadiene, shows you that (b) can be a first and second polybutadiene, which would then, in combination with (a) ... would give you, as I said, the ternary combination of three different rubbers.

(Ex. 5 – Coughlin 3/6/07 Tr. 197:15-198:2).

b. Nesbitt '940 Teaches a Base Rubber Composed of Three Different Types of Polybutadiene Rubber

Nesbitt '940 teaches a base rubber composed of three different types of polybutadiene rubber: (a) 30 parts of Neo Cis BR60; (b) 30 parts of Neo Cis BR40; and (c) 40 parts of Cariflex 1220x. (Ex. 2 – Nesbitt '940, at Tables 6 and 30). As explained in detail below, Neo Cis BR60 satisfies all of the limitations of the first polybutadiene (a) of claim 1 of the '961 patent, and Neo Cis BR40 satisfies all of the limitations of the second polybutadiene (b) of claim 2.

'961 Patent Claims 1 & 2		Nesbitt '940 Table 30
Claim 1 Component (a)	20 to 100 % of a polybutadiene with certain material properties	30 wt % Neo Cis BR60
Claim 2 Component (b)	0 to 80 wt % of a diene rubber other than component (a)	30 wt % Neo Cis BR40 40 wt % Cariflex 1220x
Claim 2 Further Limitation of Component (b)	Component (b) includes 30 to 100 wt % of a second polybutadiene with certain material properties	Neo Cis BR40 makes up 30 of the 70 parts of rubber in component (b), which is 43 wt % of component (b)

**c. Only Requirement of Third Base Rubber
is That It's a Diene Rubber**

In instances in which the diene rubber (b) of claim 2 is composed of more than one rubber, the '961 patent only requires that one of the rubbers satisfy the elements of claim 2. In other words, claim 2 of the '961 patent teaches that 30 to 100 wt % of the diene rubber (b) must include a second type of polybutadiene rubber (i.e., a rubber different from the first polybutadiene (a) of claim 1), with certain material properties.

The only claim limitation relevant to any other rubber contained in diene rubber (b) would simply be that it is a diene rubber. Again, Dr. Coughlin agreed with this analysis at his deposition:

A: So, in that, in the instance in which (b) is a combination of two rubbers, and that combination, one of those can be either absent if the other one is at a hundred percent, or could be a – in as large a content as 70 percent, if the other was at 30 percent, the question is, if one of those two satisfies the cis one-four content, one-two vinyl content, and has a Mooney viscosity of not greater than 55, as long as the viscosity assumption is valid, would it matter if the other one, that's not applied to this criteria has a Mooney viscosity ... greater than 55. I'm trying to think through the argument, here, just a second.

Mr. Shin: Counsel, it's been a little over an hour, can we take a break now?

Mr. Jenkins: We're in the middle of a question.

Mr. Shin: Okay. I thought the witness had answered the question.

A: So the second and third does that, so would the Mooney viscosity criteria be applied to the third diene, if it's present? I guess my – my quick assessment, here, as we're doing this, to answer the question, is thinking that it may not be applicable, this Mooney viscosity criteria to that third diene, if it were present.

(Ex. 5 – Coughlin 3/6/07 Tr. 199:8-200:12).

In short, the '961 patent allows rubber compositions with three base rubbers, so long as one of the rubbers contain the material properties of the first polybutadiene (a) of claim 1 and one of the rubbers contain the material properties of the second polybutadiene of claim 2 and the other rubber is a diene rubber. As explained below, Nesbitt '940 discloses a base rubber composition that satisfies these limitations.

3. Nesbitt '940 Teaches "Polybutadiene (a)"

Claim 1 of the '961 patent requires a base rubber composition composed of 20 to 100 wt % of a first polybutadiene ("polybutadiene (a)") having certain properties:

'961 Claim Requirements for Polybutadiene (a)
Cis-1,4 content of at least 60%
1,2 vinyl content of at most 2%
Viscosity η at 25 °C as a 5 wt % solution in toluene of up to 600 mPa·s
Synthesized using a rare-earth catalyst
Satisfying the relationship: $10B + 5 \leq A \leq 10B + 60$ A = Mooney viscosity B = Ratio Mw/Mn

Table 30 of the Nesbitt '940 patent discloses a core composition that includes 30 wt % of Neo Cis BR60, which is a polybutadiene rubber that inherently satisfies the limitations of the '961 patent's polybutadiene (a) as described in the above table.²

² Dr. Coughlin states that there are "very substantial differences between the Nesbitt '940 patent and the '961 patent because "the Nesbitt '940 patent is completely silent with respect to the specific formulas given in claims 1 and 2 of the '961 patent as well as with respect to values for viscosity η at 25°C as a 5 wt % solution in toluene of up to 600

In his expert report, Dr. Jack Koenig showed how Neo Cis BR60 meets all of the claim limitations for polybutadiene (a) of the '961 patent. (Ex. 6 – Koenig 1/16/07 Invalidity Report, pp. 18-23). In support of his opinion, Dr. Koenig relied on the Nesbitt '940 patent, which disclosed that the cis 1,4 content of Neo Cis BR60 is 97.5%; the 1,2 vinyl content of Neo Cis BR 60 is 0.8%; and the Mooney viscosity of Neo Cis BR60 as 60-66. (Ex. 2 – Nesbitt '940, at Table 2). Dr. Koenig further conducted testing on samples of commercially-available Neo Cis BR60 to determine its solution viscosity and polydispersity. The samples of Neo Cis rubber he obtained were purchased from the manufacturer, Polimeri Europa of Milan, Italy, through its United States distributor, Alternative Rubber and Plastics, Inc., of Amherst, NY. (Ex. 6 – Koenig 1/16/07 Report, pg. 21). The testing of the samples showed that Neo Cis BR60 has a solution viscosity of 435.30 mPa·s and a polydispersity of 2.919. (Ex. 6 – Koenig 1/16/07 Report, pp. 18-23, and Exhibits K and Q).

To ensure that the samples of Neo Cis rubber that he tested were of the same formulation as the same-named “Neo Cis” rubber described in the Nesbitt '940 patent, Dr. Koenig tested the samples to also determine their 1,2-vinyl content. The results of those tests show that the Neo Cis BR60 sample had a 1,2 vinyl content of 0.83% and that the Neo Cis BR40 sample (which Dr. Koenig tested for purposes of claim 2) had a 1,2 vinyl content of 0.82 % (Ex. 6 – Koenig 1/16/07 Report, pp. 18-23, and Exhibit P), which is consistent with the values published in the Nesbitt '940 patent, at Table 2. Nesbitt '940

mPa·s for specific polybutadiene rubbers.” (Ex. 4 – Coughlin 2/20/07 Report, pg. 17). The fact that Nesbitt '940 does not discuss a couple of the specific intrinsic rubber properties discussed in the '961 patent, however, is *entirely irrelevant* to the validity determination. See *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1436 (Fed. Cir. 1988) (“The issue is whether the claimed copolymer, as defined in part by various property parameters, is new”); see also, *Atlas Powder*, 190 F.3d at 1347 (“[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s function, does not render the old composition patentably new to the discoverer.”) The important consideration is whether the Neo Cis rubber inherently possesses the intrinsic rubber properties claimed in the '961 patent.

indicates these rubbers have a 1,2 vinyl content of 0.8 %. Bridgestone's expert, Dr. Coughlin, admitted that this indicates that the rubbers tested and the rubbers of the Nesbitt '940 patent have the same microstructure. (Ex. 5 – Coughlin 3/6/07 Tr. 215:4-15).

Dr. Koenig also tested the solution viscosity of the Neo Cis rubber samples and compared it to viscosity values obtained in the 1990s. U.S. Patent No. 5,708,081 (Ex. 7), filed in 1994, discloses that the solution viscosity for Neo Cis BR40 as a 5 wt % solution in styrene was 330 mPa.s. Dr. Koenig's testing showed that the solution viscosity of the Neo Cis BR40 sample as a 5 wt % solution in styrene is 336 mPa.s. (Ex. 6 – Koenig 1/16/07 Report, pg. 28, and Exhibit S). Dr. Coughlin, Bridgestone's expert, described this as "another data point" suggesting the rubbers have not changed. (Ex. 5 – Coughlin 3/6/07 Tr. 222:5-17).

Further in forming his opinion that the Neo Cis samples had not changed, Dr. Koenig also considered that the name of the rubber had not changed, since in his experience a manufacturer will not change the formulation of a commercially available rubber without changing its name. (Ex. 6 – Koenig 1/16/07 Report, pg. 22). Consistent with Dr. Koenig's view, Dr. Coughlin testified, too, that if someone were to change some physical property of the rubber without changing the name, it would create confusion in the marketplace. (Ex. 5 – Coughlin 3/6/07 Tr. 219:3-9).

Finally, Dr. Koenig conferred directly with the manufacturer of the Neo Cis rubbers that the rubbers have not changed. Polimeri Europa confirmed, by email and follow up phone conversation, that the Neo Cis rubbers have not changed. (Ex. 6 – Koenig 1/16/07 Report, pg. 22, and Exhibits M, N and O).

Bridgestone's expert, Dr. Coughlin, in rebuttal, could not dispute that the properties of Neo Cis BR60 read on the claim limitations for polybutadiene (a) of the '961 patent. In fact, he made no effort to even try to dispute Dr. Koenig's extensive analysis, such as by conducting his own analysis or undertaking testing of his own.

Instead, Dr. Coughlin's makes a single argument, lacking any support, and placed in a footnote of his report, that Dr. Koenig's evidence was not "conclusive" because he had not "provided evidence that the Neo Cis rubbers are the same now as they were back prior to the '961 patent." (Ex. 4 – Coughlin 2/20/07 report, at pg. 18, fn 4)

Dr. Coughlin's only rebuttal, however, is completely unfounded and contrary to the undisputed facts of the investigation and analysis that Dr. Koenig undertook, as described above. Furthermore, in his infringement report, Dr. Coughlin offered his own opinion that CB23 rubber produced by Lanxess Company was the same rubber previously produced by Bayer under the name Buna CB23. Dr. Coughlin further opined that the Dow 1220 rubber produced by Dow Chemical was the same rubber previously produced by Shell as Shell BR-1220. Dr. Coughlin based his statements simply on his general understanding that the companies continued to manufacture the rubber under "generally the same manner under the same name." (Ex. 8 – Coughlin 1/16/07 Report, pg. 15). Applying this even lesser analysis to Neo Cis rubber, it is clear that the rubbers are the same, as the manufacturer never even changed.

The Nesbitt '940 patent states that the Neo Cis rubbers are manufactured by "Enichem." (Ex. 2 – Nesbitt '940, at col. 7, lines 43-45).) In 2001, Enichem merged with Polimeri Europa (a company owned jointly by Enichem and Dow Chemical) and changed their name to Polimeri Europa. (Ex. 6 – Koenig 1/16/07 Report, pg. 21; *see also*, Ex. 9 – Merger Procedure Decision from Commission of European Communities). Dr. Koenig obtained the samples of Neo Cis rubber from Polimeri Europa. (Ex. 6 – Koenig 1/16/07 Report, pg. 21). Therefore, the Neo Cis rubbers were obtained from the same manufacturer identified in the Nesbitt '940 patent.

In view of the support for Dr. Koenig's opinion, including testimony from Dr. Coughlin himself, a bald statement that it is not "conclusive" that the Neo Cis rubber may not have changed in the time period since the Nesbitt '940 patent is insufficient to create a triable jury issue and defeat summary judgment. The Federal Circuit has repeatedly

held that conclusory expert testimony, which lacks adequate explanation or the necessary evidentiary basis, is insufficient to defeat summary judgment. *See, e.g., Zelinski v. Brunswick Corp.*, 185 F.3d 1311, 1317 (Fed. Cir. 1999).

Dr. Koenig's opinion being rebutted by nothing more than a metaphysical doubt on the part of Bridgestone's expert, there can be no genuine dispute that Neo Cis BR60 has all of the properties required to satisfy the polybutadiene (a) disclosed in claim 1 of the '961 patent:

'961 Claim Requirements for Polybutadiene (a)	Neo Cis 60
Cis-1,4 content of $\geq 60\%$	97.5%
1,2 vinyl content $< 2\%$	0.8%
Solution viscosity ≤ 600 mPa·s	435.30 mPa·s
Satisfying the relationship $10B + 5 \leq A \leq 10B + 60$ A = Mooney Viscosity B = Polydispersity	Mooney = 63 Polydispersity = 2.919 $34.19 \leq 63 \leq 89.19$ Equation is satisfied.
Rare Earth Catalyst	Neodymium

4. Nesbitt '940 Teaches "Diene Rubber (b)"

Claim 1 further requires that the base rubber be composed of 0 to 80 wt % of a diene rubber ("diene rubber"). Referring back to Table 30 of the Nesbitt '940 patent, it discloses a core formulation with 30 wt % of Neo Cis 40 and 40 wt % of Cariflex 1220x, which are both diene rubbers. The total amount of diene rubber (b) disclosed in Nesbitt '940, therefore, is 70%, which is within the claimed range.

As discussed in detail above, diene rubber (b) can be composed of more than one type of rubber, so long as they are both diene rubbers.

5. Nesbitt '940 Teaches "Unsaturated Carboxylic Acid"

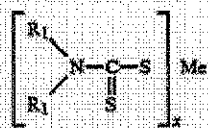
Claim 1 further requires 10 to 60 parts by weight of an unsaturated carboxylic acid or a metal salt thereof or both. Zinc diacrylate (ZDA) is a metal salt of an unsaturated carboxylic acid. Table 30 of the Nesbitt '940 patent discloses a core formulation that includes 20.5 parts by weight of ZDA, which is within the 10 to 60 parts by weight required by claim 1 of the '961 patent. Bridgestone's expert does not dispute that this limitation is present in Nesbitt '940.

6. Nesbitt '940 Teaches "Organosulfur Compound"

Claim 1 further requires 0.1 to 5 parts by weight of an organosulfur compound. The Nesbitt '940 patent incorporates by reference, U.S. Patent No. 4,852,884 to Sullivan ("Sullivan '884"). (Ex. 2 – Nesbitt '940, col. 13, lines 25-32). Nesbitt '940 discloses that the dithiocarbamates set forth in the Sullivan '884 patent may be incorporated into the polybutadiene compositions of the present invention. (Ex. 2 – Nesbitt '940, col. 13, lines 25-32: "the dithiocarbonates [sic] set forth in U.S. Pat. No. 4,852,884 may also be incorporated into the polybutadiene compositions of the present invention"). Material incorporated by reference may be considered in an anticipation determination. *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000). "Incorporation by reference provides a method for integrating material from various documents into a host document—a patent or printed publication in an anticipation determination—by citing such material in a manner that makes clear that the material is effectively part of the host document as it is were explicitly contained therein." *Id.*

Dithiocarbamates are organosulfur compounds. (Ex. 5 – Coughlin 3/6/07 Tr. 206:16-19). The Sullivan '884 patent provides the chemical formula for the dithiocarbamates at col. 2, lines 26-33:

The dithiocarbamate component of the core composition is selected from those compounds of the formula



R1 connotes the presence of carbon, making the molecule organic, while S connotes the presence of sulfur, making the molecule an organic sulfur compound. (Ex. 6 – 1/16/07 Koenig Report, at pg. 25; Ex. 5 – Coughlin 3/6/07 Tr. 206:16-19).

The Nesbitt '940 patent states that such compounds can be added to the core formulation in the amounts indicated in the incorporated patents. (Ex. 2– Nesbitt '940, col. 13, lines 29-32). The Sullivan '884 patent discloses that dithiocarbamates can be included in amounts between 0.1 to 0.5 parts by weight. (Ex. 10 – Sullivan '884, at col. 2, lines 44-48). This is entirely within the claimed range for organosulfur compounds in the '961 patent.

“[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is ‘anticipated’ if one of them is in the prior art.” *Titanium Metals Corp. v. Banner*, 778 F.2d 775 (Fed. Cir. 1985) (citing *In re Petering*, 301 F.2d 676, 682 (C.C.P.A. 1962)) (Claims to titanium (Ti) alloy with 0.6-0.9% nickel (Ni) and 0.2-0.4% molybdenum (Mo) were held anticipated by a graph in prior art showing a data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni and this composition was within the claimed range of compositions.).

Presented with this evidence at his deposition, Dr. Coughlin admitted that the Nesbitt '940 patent includes an “indirect” teaching of using an organosulfur compounds in a core formulation. (Ex. 5 – Coughlin 3/6/07 Tr. 203:17-204:11). Bridgestone’s expert further admitted that the use of organosulfur compounds in a golf ball core composition was well known prior to both the Nesbitt '940 patent and Bridgestone’s '961 patent (Ex. 5 – Coughlin 3/6/07 Tr. 209:5-10).

In his expert report, Dr. Coughlin attempts to draw a distinction with respect to the type of organosulfur compound disclosed in Nesbitt '940 and that disclosed in the '961 patent. Dr. Coughlin states that he understands "that the dithiocarbamates are different from the thiophenol and polysulfide organosulfur compounds listed in the '961 patent specification at column 7, lines 43-55." (Ex. 4 – Coughlin 2/20/07 Report, pg. 24). But that is contrary to the disclosure of the '961 patent, which discloses the use of more than just "thiophenol and polysulfide organosulfur compounds." The '961 patent explicitly states that "exemplary organosulfur compounds include ... organosulfur compounds having 2 to 4 sulfurs." (Ex. 1 – '961 Patent, at col. 7, lines 44-51). The organosulfur compounds of Nesbitt '940 are organosulfur compounds with 2 sulfurs:

The dithiocarbamate component of the core composition is selected from those compounds of the formula



Moreover, the claim of the '961 patent does not limit itself to any particular type or kind of organosulfur compound. Rather, the claim is generically directed to "organosulfur compounds." There can be no legitimate argument that Nesbitt '940 teaches the organosulfur limitation of the '961 patent.

7. Nesbitt '940 Teaches "Inorganic Filler"

Claim 1 of the '961 patent further requires 5 to 80 parts of an inorganic filler. Zinc oxide is an inorganic filler. (Ex. 2 – Nesbitt '940, at col. 12, lines 56-65). Table 30 of the Nesbitt '940 patent discloses a core formulation with 31.4 parts by weight of zinc oxide, and inorganic filler, which is within the 5 to 80 parts by weight required by the '961 patent. Bridgestone's expert does not dispute that this limitation is disclosed in the Nesbitt '940 patent.

It is worthy to point out yet another inconsistency in Dr. Coughlin's arguments. With respect to the claim limitation for the inorganic filler, the claim requires: "5 to 80 parts of *an inorganic filler*." Notwithstanding the fact that this claim term is singular and uses the article "an," in attempting to show infringement Dr. Coughlin states that this claim language permits more than one inorganic filler. Yet, when trying to fend off the prior art, Dr. Coughlin appears to dispute (at least in his expert report) that the diene rubber of claim 1 can be composed of more than one rubber, based on the fact that the claim reads: (b) 0 to 80 wt % of *a diene rubber*. Dr. Coughlin cannot have it both ways. It is axiomatic that you cannot construe the claim one way to show infringement and another way to avoid the prior art.

8. Nesbitt '940 Teaches "Organic Peroxide"

Claim 1 of the '961 patent further requires 0.1 to 5 parts of an organic peroxide. Triganox 42-40B is an organic peroxide (Ex. 2 – Nesbitt '940, at col. 12, lines 8-24). Table 30 of the Nesbitt '940 patent discloses a core formulation with 1.25 parts by weight of Triganox 42-40B, an organic peroxide, which is within the 0.1 to 5 parts by weight required by the '961 patent. Bridgestone's expert does not dispute that this limitation is disclosed in the Nesbitt '940 patent. In summary:

'961 Claim Requirements Core Formulation	Table 30 Nesbitt '940 Prior Art Core Formulation
20-100 wt % polybutadiene (a)	30 wt % Neo Cis 60
0-80 wt % diene rubber (b)	30 wt % Neo Cis 40; 40 wt % Cariflex 1220x
10 to 60 parts by weight unsaturated carboxylic acid or a metal salt thereof or both	18.2 parts Zinc Diacrylate (ZDA)
0.1 to 5 parts by weight of an organosulfur compound	0.1 to 0.5 parts dithiocarbamate
5 to 80 parts by weight of an inorganic filler	31.4 parts Zinc Oxide
0.1 to 5 parts by weight of an organic peroxide	1.25 parts Triganox 42-40B

9. Nesbitt '940 Teaches "Cover Layer Hardness"

a. Nesbitt '940 Teaches "Inner Cover Layer Hardness"

Claim 1 of the '961 patent further requires the inner cover layer have a Shore D hardness of 50 to 80. Table 34³ of the Nesbitt '940 patent, reproduced below, shows that the Shore D hardness of the inner cover layer of the Nesbitt '940 prior art ball is about 70, which is within the claimed range of 50 to 80 in the '961 patent.

TABLE 34

Property	Intermediate Ball (from Table 33)			
	1	2	3	4
Flex Modulus (weighted avg.)	264 MPa	264 MPa	264 MPa	264 MPa
Stiffness Modulus	3521 Kgf/cm ²	3521 Kgf/cm ²	3521 Kgf/cm ²	3521 Kgf/cm ²
Size (Intermediate ball)	1.570" \pm 0.004	1.570" \pm 0.004	1.570" \pm 0.004	1.570" \pm 0.004
Weight (intermediate ball)	38.3 g \pm 0.3	38.3 g \pm 0.3	38.3 g \pm 0.3	38.3 g \pm 0.3
Thickness	0.050" \pm 0.008	0.050" \pm 0.008	0.050" \pm 0.008	0.050" \pm 0.008
Richle comp	122 \pm 12	112 \pm 12	112 \pm 12	106 \pm 8
C.O.R.	0.780 \pm 0.015	0.790 \pm 0.015	0.790 \pm 0.015	0.795 \pm 0.015
Mantle Specific Gravity	0.96 \pm 0.01	0.96 \pm 0.01	1.12 \pm 0.05	1.12 \pm 0.05
JIS C	97 \pm 1	97 \pm 1	97 \pm 1	97 \pm 1
Shore C	97 \pm 1	97 \pm 1	97 \pm 1	97 \pm 1
Shore D	70 \pm 1	70 \pm 1	70 \pm 1	70 \pm 1

b. Nesbitt '940 Teaches "Outer Cover Layer Hardness"

Claim 1 of the '961 patent further requires that the outer cover layer have a Shore D hardness of 35 to 60. Table 37⁴ of the Nesbitt '940 patent, reproduced below, shows that the Shore D hardness of the outer cover layer of the Nesbitt '940 prior art ball is 46, which is within the claimed range of 35 to 60 in the '961 patent.

³ Table 34 discloses the properties of the inner cover layer of a golf ball made with the core formulation described in Table 30. (Ex. 2 – Nesbitt '940, at col. 44-46).

⁴ Table 37 discloses the properties of the outer cover layer of a golf ball made with the core formulation described in Table 30, and the inner cover layer described in Table 34. (Ex. 2 – Nesbitt '940, at col. 44-46).

TABLE 37

Property	Finished Ball (from Table 36)			
	A	B	C	D
Flex Modulus (weighted avg.)	58 MPa	58 MPa	240 Mpa	140 MPa
Stiffness Modulus (estimate)	~300 Kgf/cm ²	~300 Kgf/cm ²	1820 Kgf/cm ²	763 Kgf/cm ²
Combined Mantle/Cover Stiffness	~700 Kgf/cm ²	~700 Kgf/cm ²	1942 Kgf/cm ²	—
Cover Specific Gravity	0.98 ± 0.01	0.98 ± 0.01	0.98 ± 0.01	0.98 ± 0.01
Size	1.685" ± 0.005	1.685" ± 0.005	1.685" ± 0.005	1.685" ± 0.05
Weight	45.4 g ± 0.4	45.4 g ± 0.04	45.4 g ± 0.4	45.4 g ± 0.04
Riehle Compression	105 ± 10	100 ± 10	95 ± 5	85 ± 5
C.O.R.	0.770 ± 0.015	0.780 ± 0.015	0.790 ± 0.015	0.790 ± 0.015
IIS C	72 ± 1	72 ± 1	93 ± 1	87 ± 1
Shore C	72 ± 1	72 ± 1	93 ± 1	87 ± 1
Shore D	46 ± 1	46 ± 1	62 ± 1	56 ± 1

c. Nesbitt '940 Teaches "Soft Over Hard Cover Construction"

Claim 1 of the '961 patent further requires that the outer cover layer have a lower Shore D hardness than the inner cover layer. As shown above with reference to Tables 34 and 37, the Nesbitt '940 patent discloses a golf ball with an inner cover hardness of about 70 and an outer cover hardness of about 46. This example, therefore, discloses a golf ball wherein the outer cover layer has a lower Shore D hardness than the inner cover layer, as required by claim 1 of the '961 patent. In summary:

'961 Claim Requirements Shore D Hardness Requirements	Nesbitt '940 Prior Art Shore D Hardness
Inner Cover Shore D = 50 to 80	71
Outer Cover Shore D = 35 to 60	46
Outer Cover Softer Than Inner Cover	46 is less than 71

d. Nesbitt '940's Hardness Measurements Are Reliable

Dr. Coughlin argues in his expert report that the Shore D measurements in Nesbitt '940 are not comparable to the Shore D hardness measurements contained in the '961 patent. Dr. Coughlin contends that the hardness values in the '961 patent are limited to "off the ball" measurements, whereas the Nesbitt '940 patent measures hardness "on the

ball.” (Ex. 4 – Coughlin 2/20/07 Report, at pp. 24-26.) Dr. Coughlin’s “off the ball” versus “on the ball” argument is untenable.⁵

In his deposition, Dr. Coughlin admitted that an on the ball measurement is not necessarily invalid:

Q: So, just to clarify, if the Acushnet documents that you rely on in your expert report, here, to evidence the required Shore D hardness relationships that are in the claim of the ‘961 patent, were made on the ball, that wouldn’t necessarily make them, in your opinion, invalid to rely on; is that correct?

A: Not necessarily, no, *it would not be invalid to measure Shore D hardness on the ball.*

(Ex. 5 – 3/6/07 Coughlin Tr. 141:8-16).

Whether the claims of the ‘961 patent require the Shore D hardness measurement to be made “off the ball,” as Dr. Coughlin asserts, is a question of law for the Court. Interpretation of the asserted claims is a question of law, and the court must determine the scope and meaning of the claims. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), aff’d., 517 U.S. 370 (1996). Claims are construed with reference to the claim language, the patent specification and the prosecution history which together constitute the “intrinsic” evidence. *Loctite v. Ultraseal*, 781 F.2d 861, 867 (Fed. Cir. 1985). When determining the scope and meaning of the patent claims, the language of the claims in light of the specification is considered first. *McGill, Inc. v. John Zink Co.*, 736 F.2d 666, 672 (Fed. Cir. 1984).

The only support Dr. Coughlin has for his argument that the ‘961 patent is limited to “off the ball” hardness measurements, is one sentence from the specification that states that the “Shore D hardnesses of the inner cover layer and the outer cover layer were

⁵ An “on the ball” measurement is one that is done on the material as it sits on the golf ball itself, whereas an “off the ball” measurement is done by removing the specific material itself from the ball, forming the material into a test specimen, and then testing that material. (Ex. 11 – 4/13/07 Dalton Decl., ¶ 2).

measured with a durometer by the test method described in ASTM D 2240.”⁶ (‘961 Patent, col. 12:54-57).

Among various other requirements, the ASTM D 2240 method states that the sample being tested is flat and at least 6 mm thick. The inner and outer cover of a golf ball is neither flat nor 6mm thick. Therefore, to obtain such a sample, the outer and inner cover of a golf ball would need to be removed, melted down with covers from other samples (to get enough material to have a six mm thick sample), and then cooled and formed into a flat plaque. (Ex. 11 – 4/13/07 Dalton Decl., ¶ 3-5). Because the golf ball covers are removed for testing, the measurement is referred to as being made “off the ball.” (Ex. 11 – 4/13/07 Dalton Decl., ¶ 5). Based on this reasoning, Coughlin argues that the ‘961 patent is limited to “off the ball” hardness measurements.

The claims of the ‘961 patent, however, do not require the Shore D hardness measurements to be made “off the ball.” In fact, the claims of the ‘961 patent do not contain any limitation on how the Shore D hardness measurement is conducted. Rather, the claims simply state that the outer and inner cover layers have a certain range of

⁶ Dr. Coughlin argues that to anticipate the ‘961 patent, the Shore D hardness values must have been tested according to this standard. Dr. Coughlin’s position was completely different, however, when, in attempting to prove infringement, he ignored the ‘961 patent specification’s statement that solution viscosity was measured using a specified viscometer and standard (JIS Z8809). Dr. Coughlin testified that he never bothered even to review the JIS Z standard mentioned in the ‘961 patent before measuring solution viscosity. (Ex. 5 – 3/6/07 Coughlin Tr. 140:8-17). He further admitted that he did not prepare the samples for his viscosity testing in accordance with the method identified in the ‘961 patent. (Ex. 5 – 3/6/07 Coughlin Tr. 140:4-7). Dr. Coughlin stated that, as long as the measurement was reliable, that is all that is required. (Ex. 5 – 3/6/07 Coughlin Tr. 101:16-22). Therefore, so long as the Shore D hardness measurement is done in a reliable and accepted manner, the result should be acceptable to compare to the claims. Bridgestone’s material properties testing expert, Dr. Caulfield, stated that such changes constitute typical engineering discretion: ““I would say at times during testing if you can’t do it exactly as maybe supplied by a standard, you can deviate from the methodology with engineering discretion.” (Ex. 12 – 3/29/07 Caulfield Tr. 40:14-17 (rough)).

hardness values: “the inner cover has a Shore D hardness of 50 to 80; the outer cover layer has Shore D hardness of 35 to 60.” (Ex. 1 – ‘961 patent, claim 1). Dr. Coughlin agreed:

Q: Can you point to any instance in this patent where it says that the Shore D hardness must be measured in accordance with that standard [ASTM D 2240]?

A: *I don't see anywhere in here where it says that they must be measured by that ...*

(Ex. 5 – 3/6/07 Coughlin Tr. 242:21-243:3).

Furthermore, the specification, read as a whole, shows that the hardness values in the ‘961 patent, are actually “*on the ball*” measurements. This is not surprising, as it is common knowledge in the golf ball industry that Shore D hardness measurements are made in accordance to the ASTM D 2240 method, but are made “on the ball.”^{7,8} (Ex. 11 – 4/13/07 Dalton Decl., ¶ 6).

⁷ This practice is followed because an on the ball measurement has several advantages. First, it enables the tests to be done as the ball is being made. Second, it allows testing to be done without destroying the ball. *Id.* Third, it provides data on the cover hardness in the form that the ball is actually going to be used, as golf ball. Fourth, it avoids having to melt down the covers of several samples and reforming the covers into plaques. Many golf ball covers, such as thermoset polymer covers will not even melt to begin with. For those covers that will melt, the melting and reforming process (*i.e.*, breaking and reattaching the polymers intrinsic structure) would inject a large error into the actual hardness value of the material. (Ex. 11 – 4/13/07 Dalton Decl., ¶ 6). For these reasons, the golf ball industry typically modifies the ASTM D 2240 standard so that the measurement is made on the ball. *Id.* Consistent with this practice, the Nesbitt ‘940 patent states that the Shore D hardness values in the patent were measured according to the ASTM D 2240 test method modified for an on the ball measurement. (Ex. 2 – Nesbitt ‘940, col. 25, line 65 to col. 26, line 8).

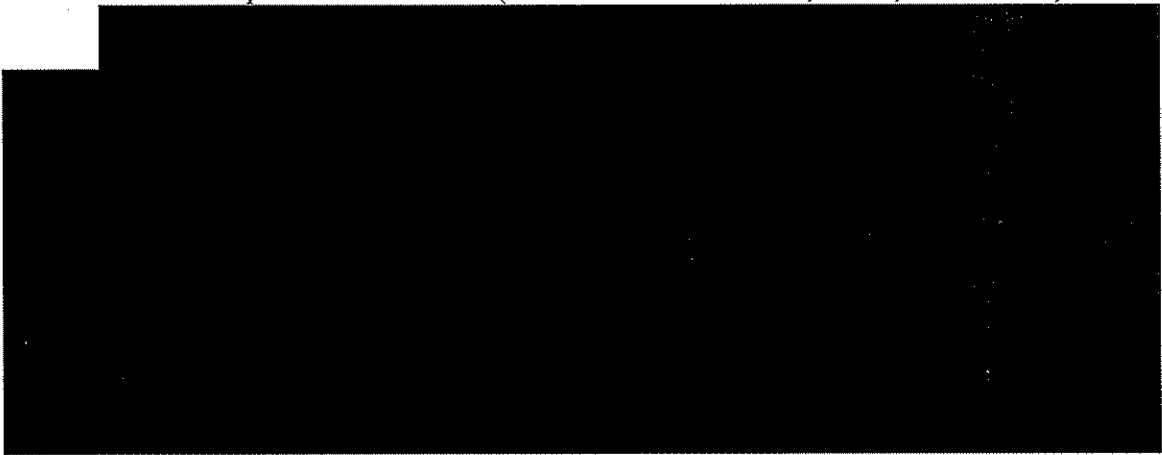
⁸ The ASTM D 2240 standard is not unique to the golf ball industry. (Ex. 11 – 4/13/07 Dalton Decl., ¶ 3). It is used for the testing of all manner of material surfaces, including in the automotive and aeronautical industries. *Id.*

In column 9 of the '961 patent, the specification expressly defines the "inner cover layer" and "outer cover layer" of the claimed golf ball (the Shore D hardness of which is spoken to in claim 1) as "*cover layers*" produced from known "*cover stock*."

The golf ball of the invention is a multi-piece solid golf ball having a cover composed of at least two layers which are referred to herein as the "inner cover layer" and the "outer cover layer." *Such cover layers can be produced from known cover stock.* The cover stocks used to make both cover layers in the inventive golf ball may be composed primarily of a thermoplastic or thermoset polyurethane elastomer, polyester elastomer, ionomer resin, ionomer resin having a relatively high degree of neutralization, polyolefin elastomer or mixture thereof. (Ex. 1 – '961 Patent, col. 9, lines 14-24).

This draws a clear distinction between "*cover layer*" and "*cover stock*." The cover stock is the material off the ball. The cover layer is what is formed on the ball as a layer. (Ex. 1 – '961 Patent, col. 9:14-28). Claim 1 is clearly directed to the Shore D hardness of the "cover layer," and not the "cover stock."

This distinction is carried out consistently in the '961 patent specification. At the bottom of column 9 where the manufacturing of the inner and outer cover layers is described in the patent, the specification states that "a predetermined method is used to successively inject over the core the above-described inner and outer cover layer materials. In another preferred method [of manufacture], each of the cover stocks is formed into a pair of half cups, and the resulting pairs are successively placed over the solid core and compression molded." (See Ex. 1 – '961 Patent, col. 9, lines 50-58).



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Thus, Dr. Coughlin's argument that the "on the ball" hardness values disclosed in Nesbitt '940 are somehow unreliable or incomparable to the '961 patent is wrong.

B. Claim 2 of the '961 Patent is Anticipated by the Nesbitt '940 Patent

Claim 2 depends from claim 1 and further requires the diene rubber (b), of claim 1, to include 30 to 100 wt % of a second polybutadiene having certain characteristics:

'961 Claim 2 Requirements for Second Polybutadiene
Cis-1,4 content of at least 60%
1,2 vinyl content of at most 5%
Mooney viscosity of not more than 55

<p>Satisfying the relationship: $\eta \leq 20A - 550$</p> <p>A = Mooney viscosity</p> <p>η = solution viscosity of second polybutadiene</p>
--

In addition to disclosing a core formulation with 30 % Neo Cis 60, Table 30 of the Nesbitt '940 patent, referred to above, discloses a core formulation, which includes 30 parts Neo Cis 40, which is a second polybutadiene in the core formulation that accounts for 43% of the total diene rubber, other than component (a), as required by claim 2 of the '961 patent. As explained in detail below, Neo Cis 40 satisfies all of the requirements for the second polybutadiene (b) disclosed in claim 2 of the '961 patent.

Dr. Coughlin does not dispute that Neo Cis BR40 meets the limitations related to cis-1,4 content and 1,2 vinyl content. Further, Dr. Coughlin does not dispute that the Mooney viscosity of Neo Cis BR40 is less than 55. In fact, Dr. Coughlin's only argument against Neo Cis BR40 meeting the limitations of the second polybutadiene is that for a small portion of the extreme low end of the Mooney viscosity range provided in the Nesbitt '940 patent, the claimed relationship between solution viscosity and Mooney viscosity ($\eta \leq 20A - 550$) is not satisfied.⁹ (Ex. 4 – 2/20/07 Coughlin Report, pg. 22).

Nesbitt '940 states that the Mooney viscosity of Neo Cis BR40 rubber is 38-48. (Ex. 2 – Nesbitt '940, at Table 2). The nominal Mooney viscosity is 43, which is the value reported by the manufacturer. (Ex. 6 – Koenig 1/16/07 Report, pg. 22, and Exhibit M). In light of the solution viscosity obtained through testing the sample, the claimed inequality is satisfied when the Mooney viscosity is 40.8 through 48, but is not satisfied when the Mooney viscosity is 38 to 40.7. (Ex. 5 – 3/6/07 Coughlin Tr. 233:18-235:15). Dr. Coughlin relies on this subtlety to argue that Nesbitt '940 does not anticipate the '961

⁹ Independent laboratory testing on Neo Cis BR40 showed that it has a solution viscosity of 265.30 mPa•s. (Ex. 6 – Koenig 1/16/07 Report, pp. 28-29, and Exhibit P). Dr. Coughlin does not dispute or challenge this result. (Ex. 5 – Coughlin 3/6/07 Tr. 233:5-10).

patent. (Ex. 4 – Coughlin 2/20/07 Report, pg. 22). Dr. Coughlin’s legal conclusion is again wrong.

Dr. Coughlin stated in his deposition, polybutadiene rubber will have a range of physical properties, such as Mooney viscosity, because of the materials inherent “ensemble” character:

Polymer will have a range of properties, and will have a range of viscosities, because when you use the term polymer you’re actually always, in terms of synthetic polymers, referring to an ensemble of materials. There will be some polymer chains, in we think of length it will be shorter, some that be longer than others. And so you generally just describe ensemble properties. And so there will be a range of viscosities, the shorter will have a different viscosity than the medium link chains and the longer chains.

(Ex. 5 – Coughlin 3/6/07 Tr. 68:9-20)

Based on the ensemble character of polybutadiene rubber, Dr. Coughlin testified that Neo Cis BR40 would have some portion of the rubber with a Mooney viscosity in the upper end of the 38-48 range disclosed in Nesbitt ‘940: “*You would have materials that would be at the upper end [of the range 38 to 48], you would also have material that would be at the lower end.*” (Ex. 5 – Coughlin 3/6/07 Tr. 240:20-22). Dr. Coughlin further testified that “*Nominally, you can expect if you were buying, for example, a Neocis 40, that the Mooney viscosity is going to be a nominal value of about 43.*” Based on these clear admissions that Neo Cis BR40 would nominally possess a Mooney viscosity of 43, and would contain portions in which the Mooney viscosity of Neo Cis BR40 is in the upper end of the 38-48 range disclosed by Nesbitt ‘940, there is no question that Neo Cis BR40 satisfies the claimed relationship between solution viscosity and Mooney viscosity ($\eta \leq 20A - 550$). See *Mehl/Biophile Int’l. v. Milgraum M.D.*, 8 F. Supp. 2d 434 (D.N.J. 1998) (finding anticipation where the prior art and the asserted patent claim substantially overlapped).

In summary, Neo Cis 40 has all of the properties that are required for the second polybutadiene (b) disclosed in claim 2 of the '961 patent:

'961 Claim Requirements Second Polybutadiene (b)	Neo Cis 40
Cis-1,4 content of $\geq 60\%$	97.5%
1,2 vinyl content $\leq 5\%$	0.8%
Mooney Viscosity ≤ 55	43
Satisfying the relationship $\eta \leq 20A - 550$ A = Mooney Viscosity η = Solution Viscosity	Nominal Mooney Viscosity = 43 Solution Viscosity = 265.30 mPa·s $265.30 \leq 310$ Equation is satisfied. Equation is satisfied for all Mooney viscosities between 40.8 through 48.

Therefore, Table 30 of the Nesbitt '940 patent anticipates the core formulation disclosed in claim 1 and 2 of the '961 patent. Furthermore, Tables 34 and 37 of the Nesbitt '940 patent (which are part of the same embodiment as Table 30) anticipate the Shore D hardness requirements for the covers disclosed in claims 1 and 2 of the '961 patent. Because claims 1 and 2 of the '961 patent were fully disclosed in the Nesbitt '940 prior art reference, those claims are invalid.

C. Claim 2 is Obvious In View of Nesbitt '940 With the Knowledge of One of Ordinary Skill in the Art

To the extent any of the limitations of claims 1 or 2 are not anticipated by the Nesbitt '940 patent, they are still invalid based on obviousness. 35 U.S.C. § 103.

Bridgestone's Expert, Dr. Coughlin stated that one of ordinary skill in the art of the '961 patent, would have had a B.S. degree in Chemistry or an equivalent discipline with a few years of experience in the golf ball industry. Dr. Coughlin further stated that the industry experience can be replaced with advanced degrees in chemistry, chemical engineering or polymer engineering. (Ex. 4 – Coughlin 2/20/07 Report, at pg. 7). Such a

person of ordinary skill in the art would have found claim 2 of the '961 patent obvious in light of the Nesbitt '940 patent.

1. The Base Rubber Composition

Nesbitt '940 discloses golf ball core formulations made of blends of polybutadiene rubbers synthesized from neodymium catalysts (such as Neo Cis 40, Neo Cis 60, CB-22, CB-23 and CB-24), and from ultra high Mooney rubbers (such as BR-1220x). Nesbitt '940 further discloses such core compositions can also contain other polybutadiene rubbers with lower Mooney viscosities (such as BR-1220, Taktene 220 and Neo Cis 40) (*See* Ex. 2 – Nesbitt '940, at col. 6 line 55 – col. 9 line 56 and Tables 6 and 30). It was known in the prior art that such polybutadiene rubbers were well-suited for the manufacture of golf ball cores.

Dr. Coughlin argues in his report, that because Nesbitt '940 was primarily interested in combining an ultra high Mooney rubber with a rubber synthesized using a rare earth catalyst¹⁰, that it somehow does not anticipate the '961 patent. (Ex. 4 – Coughlin 2/20/07 Report, at pg. 13). However, Bridgestone's other infringement expert, Dr. Cadorniga expressly stated in his deposition that it was known, since March of 1989, that golf balls could be composed of a polybutadiene synthesized using a rare earth catalyst (such as Neo Cis 40, Neo Cis 60 or CB-23) with a low Mooney viscosity polybutadiene rubber (such as Cariflex BR 1220 or Neo Cis 40). (Ex. 14 – Cadorniga 3/12/07 Tr. 81:1-83:2).

Nesbitt '940 suggests blending rubbers with the attributes of polybutadiene (a) with rubbers with the attributes of polybutadiene (b). It would have been a matter of routine optimization for one of ordinary skill in the art to blend a golf ball core

¹⁰ Dr. Coughlin admitted, however, that Nesbitt '940 also provides examples in his patents that did not use a high Mooney viscosity rubber. (Ex. 5 – 3/6/07 Coughlin Tr. 188:7-10).

composition using amounts of each type of polybutadiene within the ranges claimed by the '961 patent. (Ex. 6 – Koenig 1/16/07 Report, pp. 33-36).

In fact, as discussed by Bridgestone's expert, Mr. Cadorniga, the idea of blending the specific rubber composition claimed in the '961 patent was well-known to skilled artisans prior to the '961 patent's filing date. (Ex. 14 – Cadorniga 3/12/07 Tr. 81:1-83:2). In addition to Nesbitt' 940, other prior art patents disclose the blending of such rubbers for a golf ball core, including U.S. Patent No. 5,955,613 to Cadorniga ("Cadorniga '613") (Ex. 15), U.S. Patent No. 5,508,350 to Cadorniga ("Cadorniga '350") (Ex. 16), U.S. Patent No. 6,486,261 to Wu et al. ("Wu '261") (Ex. 17) and U.S. Patent No. 4,683,257 to Kakiuchi et al. (Kakiuchi '257) (Ex. 18), which is assigned to Bridgestone.

Cadorniga '350 discloses a golf ball core formulation made of 50 parts CB-23 and 50 parts Neo Cis 40. (Ex. 16 – Cadorniga '350, col. 7, line 36-65). The table from Cadorniga '350, reproduced below, further shows a blended polybutadiene golf ball core formulation with inorganic filler (zinc oxide), unsaturated carboxylic acid (zinc diacrylate) and peroxide within the claimed ranges of the '961 patent:

FORMULAS	1	2	3	4	5	6	7	8	9	10
MATERIALS	PHR	PHR	PHR	PHR	PHR	PHR	PHR	PHR	PHR	PHR
NEO CIS 40	50	50	50	50	50	50	50	50	50	50
CB-23	50	50	50	50	50	50	50	50	50	50
BARYTES	—	—	—	—	—	—	—	—	—	—
ZNO	20.0	20.0	20.0	20.0	20.0	20.0	19.75	19.75	19.75	19.75
ZDA	26.5	26.5	26.5	26.5	26.5	26.5	27.5	27.5	27.5	27.5
ZN PALMATE ¹	—	4.68	—	—	2.34	—	—	4.85	—	—
ZN PALMATE ²	—	—	—	4.68	—	2.34	—	—	—	4.85
ZN STEARATE ¹	4.68	—	—	—	2.34	—	4.85	—	—	—
ZN STEARATE ²	—	—	4.68	—	—	2.34	—	—	4.85	—
REGNIND	—	—	—	—	—	—	—	—	—	—
PEROXIDE	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
PHYSICAL PROPERTIES										

Therefore, to the extent Nesbitt '940 does not explicitly disclose a golf ball formulation with the blend of rubbers described in the '961 patent, it would have been obvious based on the disclosures in Nesbitt '940 and the knowledge of one of ordinary skill in the art to formulate such a blend. (Ex. 6 – Koenig 1/16/07 Report, pp. 33-36).

Furthermore, to the extent Neo Cis BR 40 is found to not inherently satisfy the claimed relationship between Mooney and solution viscosity, because the claimed inequality is not satisfied at the extreme low end of the Neo Cis 40 Mooney range, it would have been obvious, as suggested by Nesbitt '940 to use a core formulation composed of BR-1220. BR-1220 is a low Mooney viscosity polybutadiene rubber that Bridgestone does not dispute meets the limitations of claim 2 (Dr. Coughlin asserts that this rubber meets the claim 2 limitation in its infringement report.) (Ex. 8 – 1/16/07 Coughlin Report, pp. 12-14).

Nesbitt '940 states that “the compositions of the present invention may also utilize other polybutadiene resins For example, Cariflex BR-1220 polybutadiene available from Shell Chemical ... may be utilized as other polybutadiene[]...” (Ex. 2 – Nesbitt '940, col. 9, lines 40-55).

2. Organosulfur Limitation

It was further well known in the prior art that the addition of sulfur compounds, as a peptizing agent or radical scavenger, aided in the processability of synthetic rubbers such as high cis polybutadiene. Moreover, the prior art shows that it was well known in the golf ball art, that the use of sulfur compounds was beneficial. (*See*, e.g., Ex. 19 – U.S. Patent No. 5,252,652 and Ex. 20 – U.S. Patent No. 4,556,220). For example, Bridgestone's '652 patent, filed in 1990 (twelve years prior to the '961 patent) discloses the benefits of sulfur compounds in the manufacture of improved golf ball cores. (*See* Ex. 19 – '652 patent, Abstract).

Furthermore, Dr. Coughlin admitted during his deposition that the use of an organic sulfur compound in a golf ball core was well known prior to the '961 patent. (Ex. 5 – 3/6/07 Coughlin Tr. 209:5-10). Therefore, to the extent one were to conclude that Nesbitt '940 does not disclose using a sulfur compound in the formulation of golf ball cores, such use was well known in the prior art, and would have been obvious to one

of ordinary skill in the art to include a sulfur compound. (Ex. 6 – Koenig 1/16/07 Report, pp. 35-36).

3. Shore D Hardness Limitations

To the extent the Nesbitt '940 patent does not disclose the Shore D hardness limitations of the '961 patent, because its measurements were made "on the ball," it would have been obvious to one of ordinary skill in the art to use a cover with "off the ball" hardness values similar to or the same as those disclosed in Nesbitt '940. (Ex. 2 – Nesbitt '940, at Tables 34 and 37). In any event, the difference between an "off the ball" measurement and an "on the ball" measurement is small. Mr. Dalton testified that the difference would be about 3 or 4 Shore D points:

Q: If you measured the hardness, Shore D hardness of just the Surlyns blends, maybe formed in plat, you would be higher or lower than 68?

A: My -- my best -- my best guess is that this blend would be somewhere in the neighborhood of 65 or 64 Shore D measured on the -- on a slab.

(Ex. 13 – 7/21/06 Dalton Tr. 161:12-17).

The disclosure of Nesbitt '940 shows that the use of such covers was well known in the golf ball industry, well before the '961 patent. Thus, it would have been obvious to one of ordinary skill in the art to include a cover as disclosed in the '961 patent.

VII. CONCLUSION

Therefore, for all of the foregoing reasons, Acushnet requests that its Motion for Summary Judgment of Invalidity of '961 Patent be granted.

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**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

CERTIFICATE OF SERVICE

I, David E. Moore, hereby certify that on April 20, 2007, the attached document was hand delivered to the following persons and was electronically filed with the Clerk of the Court using CM/ECF which will send notification to the registered attorney(s) of record that the document has been filed and is available for viewing and downloading:

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